

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06/20/2011 has been entered.

Election/Restrictions

This application is in condition for allowance except for the presence of claims 18-19, directed to methods of assembling two fluid tight expanded tubular joints, non-elected without traverse. Accordingly, claims 18-19 are cancelled.

Information Disclosure Statement

In the IDS filed 09/12/2011, related case 13/139,188 has been considered by the examiner. The reference to the instant application has been lined through as an application cannot be a reference to itself.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The title of the invention has been changed to the following: --Two Hermetic Threaded Tubular Joints--.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Joe Wrkich on 16 December 2011.

The application has been amended as follows:

Claims 6, 17-19 and 21 are cancelled.

Claim 1 has been amended to the following final form:

--An assembly of two fluid tight expandable threaded tubular joints, disposed symmetrically and each comprising:

a first tubular element arranged at an end of a tube and comprising a first portion provided with a male thread and a second portion extending from said first portion, the first tubular element further comprising:

i) a first outer surface,

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ii) a first annular lip having a first axial abutment surface and a first inner surface and delimited by said first outer surface over a portion of the axial length thereof,

iii) a second abutment surface,

iv) a first tubular element critical section defined as the annular cross-sectional area of the first tubular element, in a plane positioned normal to the axis of the element, at the largest diameter of the engaged threads; and
a second tubular element comprising:

i) a female thread, matching the first male thread and screwed thereto,

ii) a second annular lip, having a third abutment surface, a second outer surface, configured to be arranged to face said first inner surface, and a second inner surface, and wherein

iii) a third inner surface and a fourth axial abutment surface defining with the second outer surface an annular recess matching and receiving the corresponding first lip,

iv) a second tubular element critical section defined as the annular cross-sectional area of the second tubular element, in a plane positioned normal to the axis of the element, at the smallest diameter of the engaged threads; and
wherein

one of said second tubular element is disposed on each of two opposing ends of a female/female connection sleeve, separated by a central portion provided with an outer annular surface, said outer annular surface having a diameter smaller than the

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outer diameter of the annular surface of portions of the sleeve provided with the female thread, the diameter of the outer annular surface of the central portion being selected such that the area defined as the annular cross-sectional area of the connection sleeve, in a plane positioned normal to the axis of the sleeve, in the region of this outer annular surface is greater than or equal to the smallest of the critical sections of the threaded elements of the joints, each second abutment surface rests against the corresponding third abutment surface and/or each first abutment surface rests against the corresponding fourth abutment surface,

wherein the outer annular surface extends, axially, from an innermost end of the female thread on a first of the two opposing ends of the female/female connection sleeve to an innermost end of the female thread on a second of the two opposing ends of the female/female connection sleeve,

wherein the assembly is configured to develop, after diametral expansion in the plastic deformation region, sealing interference contacts sealing the assembly, and the first and second tubular elements will be sealed with respect to a pressure difference between the inside and outside of the first and second tubular elements;

wherein said second tubular element comprises, at a selected location of its third inner surface, an inner annular groove arranged substantially in the region of said first outer surface;

wherein said first and second expandable tubular elements are shaped in such a way that, after said expansion, a sealing interference contact is defined between an inner end portion of said first lip and said second outer surface.--

Claim 7 has been amended to the following final form:

--The assembly according to claim 1, wherein said groove comprises at least two curvilinear portions.--

Claim 8 has been amended to the following final form:

--The assembly according to claim 7, wherein said curvilinear portions have substantially identical radii of curvature.--

Claim 9 has been amended to the following final form:

--The assembly according to claim 8, wherein said radius of curvature is between approximately 2 mm and approximately 20 mm.--

Claim 11 has been amended to the following final form:

--The assembly according to claim 7, wherein said groove has a radial depth, the maximum value of which is selected such that the material section at the bottom of the groove is greater than the product of the smallest section of a common portion of said tubes and the efficiency of the joint under tension.--

Claim 12 has been amended to the following final form:

--The assembly according to claim 1, wherein said male and female threads comprise threads provided with a carrier flank having a negative angle of between approximately -3° and approximately -15° .--

Claim 13 has been amended to the following final form:

--The assembly according to claim 1, wherein said male and female threads comprise threads provided with a stabbing flank having a positive angle of between approximately $+10^{\circ}$ and approximately $+30^{\circ}$.--

Claim 22 has been amended to the following final form:

--The assembly according to claim 1, wherein the assembly is configured to develop, after expansion in the plastic deformation region, sealing interference contact of the first annular lip with a portion of the groove.--

Allowable Subject Matter

Claims 1-3, 5, 7-13, 15, 16, and 22-23 are allowed.

The following is an examiner's statement of reasons for allowance:

- The prior art of record does not anticipate all the particulars of the limitations as recited in instant claim 1.
- The prior art of record does not provide any teaching, suggestion or motivation (TSM) to modify the prior art of record to meet all the particulars of instant claim 1.
- There is no cogent reasoning that is unequivocally independent of hindsight that would have led one of ordinary skill in the art at the time the invention

was made to modify the prior art of record to obtain the applicant's invention as recited in instant claim 1.

In particular, none of the prior art of **Verger et al. (WO 03/060370)**, **Matsuki (U.S. Patent 3,870,351)**, and **Metcalf (WO 98/42947)** as relied upon for the rejections of the substantive claimed structure of the assembly specifically teach or render obvious the following as found in claim 1:

“one of said second tubular element is disposed on each of two opposing ends of a female/female connection sleeve, separated by a central portion provided with an outer annular surface, said outer annular surface having a diameter smaller than the outer diameter of the annular surface of portions of the sleeve provided with the female thread, the diameter of the outer annular surface of the central portion being selected such that the area defined as the annular cross-sectional area of the connection sleeve, in a plane positioned normal to the axis of the sleeve, in the region of this outer annular surface is greater than or equal to the smallest of the critical sections of the threaded elements of the joints... wherein the outer annular surface extends, axially, from an innermost end of the female thread on a first of the two opposing ends of the female/female connection sleeve to an innermost end of the female thread on a second of the two opposing ends of the female/female connection sleeve .”

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAY R. RIPLEY whose telephone number is (571)272-7535. The examiner can normally be reached on Monday through Friday, 1:30 P.M. - 10:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel P. Stodola can be reached on 571-272-7087. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. R. R./
Examiner, Art Unit 3679
16 December 2011

/James M Hewitt/
Primary Examiner, Art Unit 3679